

REMARKS

In an Office Action dated July 15, 2009 (the "Office Action"), the Examiner rejected claims 103, 104, 106, and 107 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Number 6,019,165 issued to Batchelder ("Batchelder '165") in view of U.S. Patent Publication US 2003/0056939 to Chu et al. ("Chu"), U.S. Patent No. 6,021,844 ("Batchelder '844"), U.S. Patent Publication US 2006/0169440 to Chou et al. ("Chou"), and further in view of U.S. Patent Publication US 2004/0141275 to Athari ("Athari"); rejected claims 70-84, 87, 105, and 108-112 under 35 U.S.C. §103(a) as being unpatentable over Batchelder '165 in view of Chu, Batchelder '844, Chou, Athari, and further in view of U.S. Patent No. 6,114,827 issued to Alvaro ("Alvaro"); rejected claims 85, 86, and 88 under 35 U.S.C. §103(a) as being unpatentable over Batchelder '165 in view of Chu, Batchelder '844, Chou, Athari, Alvaro and further in view of U.S. Patent No. 6,668,911 issued to Bingler.

Applicant disagrees with these rejections. However, in order to expedite prosecution, Applicant amends claims 70, 80, 82, 103, and 108-112. Support for these amendments may be found in at least Fig. 8 and the corresponding description on page 17 (para. 0108 of the published application), and between lines 15 and 27 of page 15 (para. 0103 of the published application) of the originally filed specification. Claims 70-89, 95, and 103-112 are therefore currently pending. Of these claims, claims 70, 103, and 108 are independent.

Rejections of claims 103, 104, 106, and 107.

Of these claims, claim 103 is independent and claims 104, 106, and 107 depend from independent claim 103. By this response, Applicant amends independent claim 103.

Amended independent claim 103 recites a cooling system for a computer system including, among others, “a reservoir configured to be coupled to the processing unit, ...a heat radiator fluidly coupled to the reservoir and configured to be positioned at a location away from the reservoir when the reservoir is coupled to the processing unit ... a fan adapted to direct air to the heat radiator ... [and] a pump configured to circulate the cooling liquid between the reservoir and the heat radiator, the pump including ... an impeller, ... [wherein] a speed of the impeller [is] configured to be varied independent of the speed of the fan.”

In the Office Action, the Examiner relies on Batchelder '165 for the teaching of the integrated element and the heat radiator. Office Action, pgs. 2-3. Batchelder '165 discloses an heat exchange apparatus that includes a heat spreader plate 20 having a lower surface 24 in contact with a heat generating electronic device 2. The heat spreader plate 20 is integrated with heat absorbing devices 28 (which the Examiner equates to the heat radiator) through which air is impelled to flow by a fan 30 coupled to the apparatus. To assist in heat transfer between the electronic device 2 and the heat absorbing devices 28, a heat transfer fluid is circulated between the heat transfer plate 20 and the heat absorbing devices 28. An impeller 54 is also embedded within the heat spreader plate 28 to assist in the circulation of the heat transfer fluid. The impeller 54 of Batchelder '165 is magnetically coupled to same motor that drives fan 30. See Figs. 1,

2, 5, 7; col. 5, Ins. 10-25; col. 6, Ins. 5-20. Therefore, in Batchelder '165, varying the speed of fan 30 also varies the speed of the impeller 54. Col. 7, Ins. 55-60; col. 9, Ins. 22-48; col. 11, Ins. 40-45.

In the heat exchange apparatus of Batchelder '165, the heat absorbing devices 28 are positioned on the heat spreader plate 20 and not "at a location away from the reservoir when the reservoir is coupled to the processing unit," as recited in amended claim 103. See, Batchelder '165, Figs. 1, 2, 5, 7. Additionally, since the same motor drives fan 30 and impeller 54 of Batchelder '165, "a speed of the impeller" is not "configured to be varied independent of the speed of the fan," as recited in amended independent claim 103.

Batchelder '844 does not remedy the deficiencies of Batchelder '165. Particularly, as in Batchelder '165, heat absorber 30 of Batchelder '844 is also positioned on heat spreader plate 102 and not "at a location away from the reservoir when the reservoir is coupled to the processing unit," as recited in amended claim 103. Additionally, as in Batchelder '165, fan 40 and rotor 114 of Batchelder '844 are also driven by the same motor. Therefore, in Batchelder '844 also "a speed of the impeller" is not "configured to be varied independent of the speed of the fan," as recited in amended independent claim 103.

Chu, Chou, and Athari also does not remedy the deficiencies of Batchelder '165. At least for these reasons, Batchelder '165, Batchelder '844, Chu, Chou, and Athari, alone or in combination, do not disclose or suggest the limitations recited in amended independent claim 103. Therefore, amended independent claim 103 is allowable over these references. Claims 104, 106, and 107 depend from independent claim 103, and

are therefore, also allowable over these references at least for the same reason that claim 103 is allowable.

Rejections of claims 70-84, 87, 105, and 108-112.

Of these claims, claims 70 and 108 are independent. By this response, both independent claims 70 and 108 are amended. Claims 71-84 and 87 depend from amended independent claim 70 and claims 109-112 depend from amended independent claim 108. Claim 105 depends from amended independent claim 103.

Rejection of claim 105

Alvaro does not remedy the deficiencies of Batchelder '165, Batchelder '844, Chu, Chou, and Athari discussed with reference to the rejection of independent claim 103. Therefore, claim 105 is allowable over Batchelder '165, Batchelder '844, Chu, Chou, Athari, and Alvaro.

Rejection of amended independent claim 70

Amended independent claim 70 recites a cooling system for a computer system, including among others, "an integrated element, a heat radiator, and a fan, wherein the integrated element comprises a heat exchanging interface, a reservoir, and a pump," wherein the pump is driven by an AC motor, and wherein "the fan [is] driven by a motor separate from the AC motor of the pump."

In the Office Action, the Examiner relies on Batchelder '165 for the teaching of the integrated element and the heat radiator. Office Action, pgs. 5-6. As discussed with reference to the rejection of claim 103, the same motor drives fan 30 and impeller 54 of Batchelder '165. Therefore, Batchelder '165 does not disclose or suggest a "fan [] driven by a motor separate from the AC motor of the pump." Also as discussed with

reference to the rejection of amended independent claim 103, Batchelder '844, Chu, Chou, and Athari does not remedy this deficiency of Batchelder '165. Alvaro also does not remedy this deficiency. Therefore, amended independent claim 70 is allowable over Batchelder '165, Batchelder '844, Chu, Chou, Athari, and Alvaro. Claims 71-84 and 87 depend from amended independent claim 70, and are therefore allowable over these references for at least the same reason.

Rejection of amended independent claim 108

Amended independent claim 108 recites a method of operating a cooling system, including among others, a "pump including a first motor and an impeller mechanically coupled to a rotor of the first motor," and "a fan driven by a second motor separate from the first motor such that a speed of the fan may be varied independently of the speed of the impeller."

As discussed with reference to independent claim 103, Batchelder '165, Batchelder '844, Chu, Chou, and Athari does not disclose or suggest this limitation. Alvaro also does not remedy this deficiency. Therefore, amended independent claim 108 is allowable over Batchelder '165, Batchelder '844, Chu, Chou, Athari, and Alvaro. Claims 109-112 depend from amended independent claim 108, and are therefore allowable over these references at least for the same reason.

Rejections of claims 85, 86, and 88.

Claims 85, 86, and 88 depend from amended independent claim 70. As discussed with reference to the rejection of claim 70, Batchelder '165, Batchelder '844, Chu, Chou, Athari, and Alvaro do not disclose or suggest the limitations of amended independent claim 70. Bingler does not rectify this deficiency. Therefore, claims 85, 86,

and 88 are allowable over Batchelder '165, Batchelder '844, Chu, Chou, Athari, Alvaro, and Bingler at least for this reason.

CONCLUSION

In view of the above remarks, Applicant respectfully submits that claims 70-89, 95, and 103-112 are in condition for allowance. Accordingly, Applicant respectfully requests reconsideration and re-examination of this application and the timely allowance of the pending claims.

The Office Action contains characterizations of the claims and the related art, with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

Applicant respectfully requests that the Examiner contact the undersigned, if he considers that the present response does not overcome the prior art of record. The undersigned can be reached at (617) 452-1675.

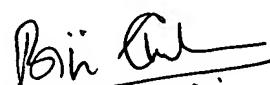
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By:



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